

New West Indian Neuropteroid Insects

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(With 29 figures)

During the past few years Dr. P. J. Darlington and Dr. D. M. Bates have collected numerous insects of the neuropteroid series in the West Indies. Among them are several new species, and genera previously unknown from the Antillean region. Of particular interest is the new species of *Dilar* from Cuba, a form always of rare occurrence, known chiefly from the Mediterranean and Oriental regions, with one in the United States, and six or seven in Central and South America.

Psocidae

Copostigma insolita, sp. nov. (Fig. 19)

Head dull brownish yellow, nasus darker, with short appressed hair; antennae pale yellowish, densely clothed with short hair, in male the eyes are a little less than diameter apart; thorax above with brown spots, short hair; abdomen brownish yellow; legs pale, tarsi darker.

Fore wings with many gray clouds, hardly brown; in male one covering most of stigma and extending behind by the spur, between radial sector and medius a long spot from outer margin one-half way inward, a spot before base of forking of radial sector, spots in the outer cells, that in the first wholly covering it, two spots between anals, and one just before separation of cubitus from medius. In the female these marks are more extensive, that in the stigma much darker, the apical half of wing is largely gray, there being numerous smaller gray spots in the pale spaces.

The veins are dark, but partly whitish as follows:- most of the basal portion of radius and medius, the connection each way between radial sector and medius, the forking of radial sector, the end of the cubitus, the basal part of inner edge of the stigma, and the lower half of outer side of the discoidal cell. In the male the pale areas of the wing are more whitish than hyaline.

The stigma is not very large, angulate behind, with a long spur, the outer side convex, the forks of radial sector

very much longer than the pedicel, the discoidal cell somewhat narrowed toward tip, its outer side concave, the radial sector and medius unite for hardly more than a point.

Length 4.2 to 4.5 mm.

From La Vesite, La Selle Range, 5-7000 ft., 16 to 23 Sept. (Bates coll.). Type M. C. Z. no. 21775.

Lophopterygella haitiensis, sp. nov.

Face black, a pale spot each side of clypeus, very large in female, vertex pale, with dark marks and dots, a large comma-shaped one on each side; head clothed with very short hair; eyes of male more than two diameters apart; antennae pale on base, beyond darker, with the base of each joint narrowly pale, with moderately short hair; thorax with the lobes black, the anterior one with a median pale line; abdomen pale, a large black spot near tip on venter; coxae black, femora dark, with a preapical pale band, tibiae mostly pale, the tips and the apical half of tarsi dark.

Fore wing (♂) mottled with dull black; a broad oblique black band from just before stigma across and ending on the hump of second anal vein; the middle of apical part of wing also quite dark, elsewhere much dotted or spotted with whitish or yellowish; the veins dark, mostly dotted with pale; outer margin with minute pale dots. In the female the entire wing is much more mottled with pale, and the broad band is only outlined, and in the apical area is a curved black band, stigma largely dark.

Discoidal cell once and one fourth as long as broad at base, four-sided, front and hind sides subparallel; stigma broadly rounded behind; areola postica acute at tip; forks of radial sector very much longer than pedicel.

Length, male 5 mm., female 6.5 mm.

From Desbarriere, Mt. La Hotte, Haiti, 4000 ft., 12-14 October (Darlington). Type M. C. Z. no. 21776.

The hump on the second anal vein is larger than in *L. lichenatus* Walsh, the wings are much darker, and with different marks on the head.

Elipsocus modestus, sp. nov.

Head yellowish; faint dark lines on nasus, a small dark line below ocelli, and some small spots on the vertex, clothed with rather long erect hair; antennae black, with moderately

long hair (♀); thorax above with five blackish spots, three on the lobes and one each side in front of base of wings, the spot on anterior lobe is partially divided, between the lobes the surface is yellow, metanotum yellow, with large dark spot each side, abdomen mostly black above, below pale; legs pale, knees and tips of tarsi darker.

Wings hyaline; most of veins brown, costa and subcosta pale; stigma not very long and not much broadened in middle, a brown spot at tip and one near base, just before the last the stigma is white; forks of radial sector longer than pedicel, areola postica extremely high; union of radial sector and medius fairly long, but shorter than base of radial sector.

Length 6 mm.

From La Vesite, La Selle Range, 5-7000 ft., 16 to 23 Sept. Haiti (Bates coll.). Type M. C. Z. no. 21780.

Differs from *E. canadensis* in black antennae, extra spots on thorax, and less widened stigma.

Caecilius brevihirtus, sp. nov. (Fig. 2)

Head dull yellowish, clothed with pale hairs, some fairly long; antennae pale, with moderately short hair; thorax yellowish, with some short pale hair, and moderately long erect black hairs, abdomen and legs pale, unmarked. Wings hyaline, veins yellowish brown, a black dot at base of stigma and one at nodus.

Fore wing rather short and broad, margin with very short but distinct hairs, veins with scattered hairs; stigma moderately long, rather wide at base, broadest near tip and here broadly rounded; forks of radial sector not as long as pedicel, union of radial sector and medius tho' quite long, is only about one-half of the base of radial sector, radial sector and medius when separating spread in a curve; areola postica small, rounded above, not reaching one-half way to medius; in hind wing the upper branch of radial sector is slightly oblique.

Length 2.3 mm.

From Whitfield Hall, Blue Mts., Jamaica, near 4500 ft., 13-20 August (Darlington coll.) Type M. C. Z. no. 21779.

Resembles *Lachesilla pedicularia*, separated by hairs on margin and veins, more elongate and less widened stigma, and smaller areola postica.

Caecilius antillanus, sp. nov. (Fig. 3)

Head dull brownish yellow to pale yellow, with short hair; antennae pale, also with short hair; thorax yellowish brown; legs and abdomen pale. Wings hyaline, the basal venation and the stigma pale yellowish, the apical venation brown. Fore wings slender, the stigma elongate, widest toward tip, and broadly rounded behind; forks of radial sector about equal to the pedicel; areola postica low, not reaching one-half way to medius, usually twice or nearly twice as long as high, broadly rounded above; union of radial sector and medius plainly shorter or hardly as long as the base of radial sector; marginal hairs moderately short; in hind wing the upper branch of radial sector is hardly oblique.

Length 2.8 mm.

From Soledad, near Cienfuegos, Cuba, 1,2 April (Myers); 6-20 August (Banks); Kingston, Jamaica (E. B. Bryant); Hayti (Uhler). Type M. C. Z. no. 21777.

Resembles *C. pinicola* of United States, but the areola postica is much smaller, the apical venation dark, and the stigma somewhat more slender.

Caecilius jamaicensis, sp. nov. (Fig. 1)

Head pale brownish yellow, clothed with short pale hair; antennae of male brown, of female paler, densely clothed with short hair, eyes of male nearly two diameters apart; thorax with three brown spots; abdomen brown, legs pale.

Fore wings largely a dark gray or gray brown, with several whitish areas; a large one near base, another near middle of anal cell and extending upward to the medius, another over tip of anal cell and occupying basal part of areola postica and extending across wing to the costa where it is much broader and reaches to the base of stigma, apex of stigma and a large pale area beyond extending over bases of apical cells, and most of the middle of the area between radial sector and medius; in other specimens these gray areas are more extensive so that almost the entire apical half of wing is dark, leaving only base and apex of stigma, basal part of areola postica, nodus and a spot before stigma and a part of the middle of area between radial sector and medius pale. The middle part of stigma is always much darker than rest of wing; the veins largely brown. The stigma is elongate, fairly wide toward tip, but rounded behind; areola postica

a little longer than high; forks of radial sector not nearly as long as the pedicel; union of radial sector and medius about as long as base of radial sector.

Length 3 to 5 mm.

From Whitfield Hall, Blue Mts., Jamaica, near 4500 ft., 13 to 20 August, and Main Range, Blue Mts., Jamaica, 5000 to 7388 ft., 17 to 19 August (Darlington coll.). Type M. C. Z. no. 21778.

Dilaridae

Dilar (Nallachius) pulchella, sp. nov. (Fig. 12)

Male. — Head pale brownish, vertex with three rounded pale yellowish warts, the posterior ones slightly oblique and broader than long, and but little separated, the anterior one as large and more rounded; antennae whitish, with very long branches; thorax pale, slightly marked with brownish on sides, lateral pronotal warts brown, oblique, narrowed toward inner end; abdomen pale, apex above darker; legs very pale, hairs at tips of tibiae, especially front tibiae are black.

Fore wings pale, crossed by a dozen or more very faint grayish irregular bands, or somewhat scattered spots, most evident in costal area and toward apex; also similar bands on the hind wings.

Fore wings of male very broad; numerous costal cross-veins, some forked; four or five cross-veins between subcosta and radius near middle of length, two between radius and radial sector, near basal and apical thirds, about twelve other cross-veins, scattered, hardly in rows; radial sector with four branches before that near tip, marginal veins forked as usual.

In hind wings also many costal cross-veins, three branches to radial sector, two cross-veins between radius and radial sector, only two or three other cross-veins.

Female with a more slender wing, not so much broadened behind, but venation much as in male; two cross-veins between radius and radial sector, five subcostals; hind wings also about the same; ovipositor as long as abdomen; warts on vertex and pronotum about same, but the posterior warts of vertex are a little smaller.

Fore wing ♂, 3 mm. long; ♀ 4.7 mm. long.

From a woods near Soledad (Cienfuegos), Cuba, 4 May (Darlington). Type M. C. Z. no. 22681.

Hemerobiidae

Hemerobius darlingtoni, sp. nov. (Fig. 4)

Head yellowish, a brown mark below each eye to mouth, tips of palpi dark; antennae pale, faintly brownish at tips of the joints, basal joint with prominent brown spot on the outer side; thorax above pale in middle, brown on sides, darkest on pronotum; abdomen yellow brown; legs yellowish unmarked.

Fore wings faintly brownish, stigma reddish; veins pale, with streaks and spots of brown, and at these places brown clouds out on membrane, the gradates dark and more broadly brown bordered, large dark spot over the short cross-vein from medius to cubitus, and larger spots than usual at origin of radial sectors; gradates six and eight, outer row nearer to inner than to outer margin, but upper outer gradate is further out so space beyond is shorter than space before; three radial sectors, last three branched; the cross-vein from medius to radius is at extreme base, costal area of about average width; in hind wings two inner and seven outer gradates.

Male genitalia inconspicuous, two bristly subparallel appendages pressed against tip of abdomen.

Fore wings 8 mm. long.

From near summit of Blue Mt. Peak, Jamacia, about 73000 feet. 17-19 Aug. (Darlington). Type M. C. Z. n.º 22121.

Hemerobius jamaicensis, sp. nov. (Fig. 14)

Head yellowish, a dark mark under each eye toward mouth; tips of palpi dark; antennae pale yellowish; thorax pale through middle, brown on sides; abdomen yellowish brown; legs pale, unmarked.

Wings hyaline; fore wings with faint brown marks across veins in many places where the vein is dark, most prominent in anal area, a larger brown spot over short cross-vein from medius to cubitus; stigma pale yellowish; gradates wholly dark; in hind wing the gradates and some apical veins brownish.

In fore wings about five or six gradates in each series, the outer row is fully as near to inner row as to outer margin (opposite in *H. cubanus*), the radial space beyond upper outer gradate is as long as the space before it; three

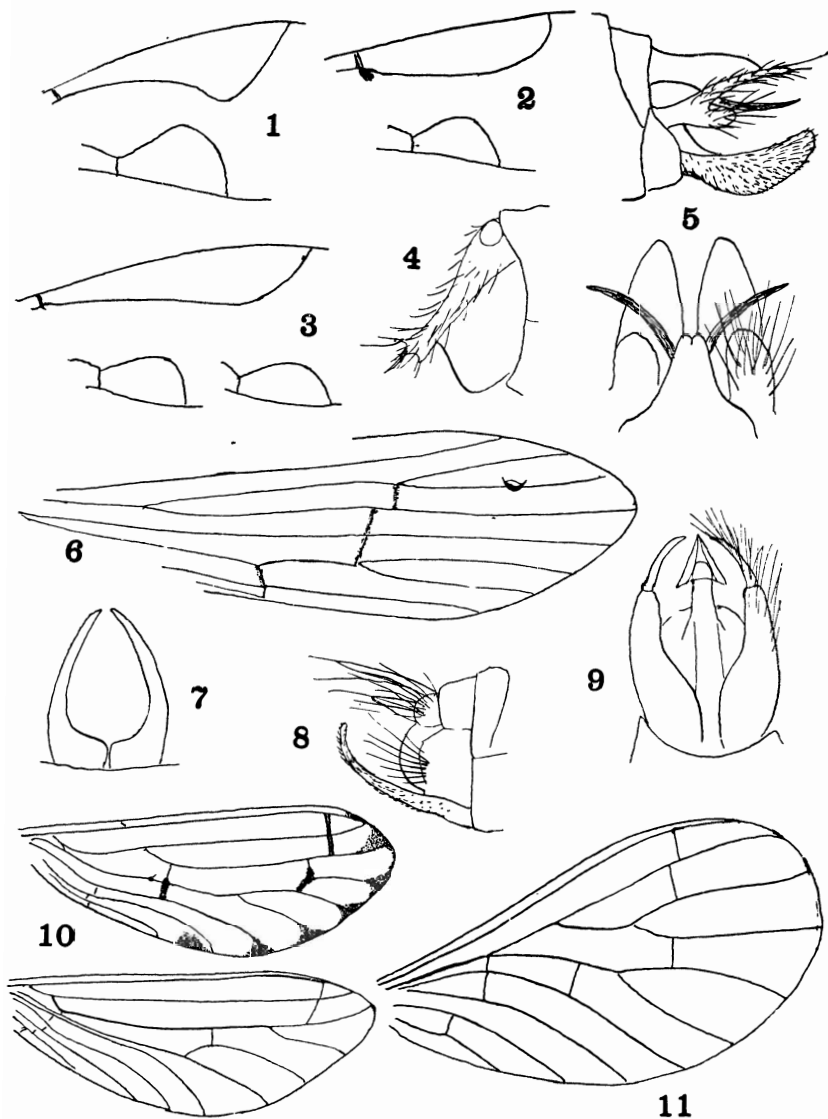


Fig. 1. *Caecilius jamaicensis* n. sp., stigma and areola postica. — Fig. 2. *Caecilius brevihirtus* n. sp., stigma and areola postica. — Fig. 3. *Caecilius antillanus* n. sp., stigma and two areola postica. — Fig. 4. *Hemerobius darlingtoni* n. sp., male genitalia, side view. — Fig. 5. *Polycentropus nigriceps* n. sp., male genitalia, side and above. — Fig. 6. *Ecetina antillana* n. sp., fore wing. — Fig. 7. *Idem*, appendages, below. — Fig. 8. *Idem*, genitalia, side. — Fig. 9. *Marilia gracilis* n. sp., male genitalia, below. — Fig. 10. *Helicoconis cubana* n. sp., fore and hind wing. — Fig. 11. *Malacomyza haitiensis* Smith, fore wing.

radial sectors, at equal distances apart, last three branched; cross-vein from radius to medius is at extreme base; costal area of average width. In hind wings two inner and five outer

gradates. Male genitalia have very long, subparallel, bristly appendages, with a short curved tooth at tip.

Fore wings 5.5 mm.

From Whitfield Hall, Blue Mts., Jamaica, 4,500 ft., 13 to 20 August (Darlington). Type M. C. Z. no. 22120.

Sympherobius insulanus, sp. nov.

This is little more than a subspecies of *S. intervena*, known from Cali, Colombia. The face is pale, unmarked, the wings have the same large black spot in the subcostal area just above the base of the first radial sector, the four outer cross-veins are arranged as in *S. intervena*, each separated, and the anterior of each couplet a little before the posterior, all very dark brown; the other cross-veins are brown, five in the inner gradate series, and one between first and second radial sector near base of the second sector, the basal cross-veins are also as in *S. intervena*; the fore wing has the same broad costal area.

The differences are that the wing is shorter, so that the cells are shorter; for example, the space between origin of second radial sector and the cross-vein to radius in *insulanus* is only about three times as long as wide, while in *intervena* it is over four times as long as broad.

In *intervena* the antennae, about ten joints from base, have three or four joints black, while in *insulanus* the antennae are entirely pale yellowish.

Length of fore wing 4.2 mm.

From Soledad (Cienfuegos), Cuba, May, and coast below Pico Turquino, Oriente, Cuba, 26 to 30 June (Darlington). Type M. C. Z. no. 22682.

Chrysopidae

Leucochrysa christophei, sp. nov.

Head discolored, but apparently with dark spot each side on cheek, and a small median dark spot on the vertex; antennae pale, basal joint discolored, but apparently with a dark stripe; pronotum and rest of notum dark, latter pale in middle (both discolored?); legs and abdomen pale; palpi marked with dark. Wings with greenish veins, costals mostly dark at outer ends, basal radials dark, and others partly so, some branches of radial sector dark at origin, the gradates and some other

cross-veins dark, and the forkings of the marginal veins dark; in hind wings the gradates and the forkings of the marginal veinlets dark, and some other cross-veins partly dark; stigma in both wings with a reddish basal spot.

Fore wings moderately broad, many costals, the hairs on them often more than one-half width of cell, about eighteen radials, the radial sector only moderately curved, nine cubitals beyond the third cubital cell, latter obliquely divided, post-cubital area much broader than cubital; eight outer gradates, eleven or twelve inner ones, inner row basally extended, its outer part parallel to the outer row and here each row is closer to the other than either to the outer margin or to the radial sector. In hind wing nine or ten inner, and seven outer gradates, inner extended basally. Pronotum somewhat broader behind than long, much narrowed toward front; antennae about as long as the fore wings, the basal joint slender.

Length of fore wing 19 mm., width 8 mm.

From Desbarriere, Mt. LaHotte, Haiti; about 4000 ft., 12 to 14 Oct. (Darlington). Type M. C. Z. no. 22679.

In *L. antennata* Navas of Cuba, the gradates are pale, and the marginal veinlets are dark, but the forkings are pale, here the forkings are dark, while the veinlets are greenish.

Chrysopa darlingtoni, sp. nov.

Pale yellowish (greenish alive) often showing a median yellow stripe, a reddish spot on each side of face by the eye, not on cheek; palpi and antennae pale, unmarked, two reddish spots on pronotum at anterior sides, two others on mesonotum, and two on metanotum. Fore wing with green veins, costals, radials, and many other cross-veins black at one or both ends, the gradates entirely black, and two or three cross-veins near wing base also black. On the third gradate from lower end of the inner series is a fairly large black spot; stigma not prominent.

Hind wings with inner gradates dark, outer ones hardly so, the costals and radials faintly dark at one or both ends.

The fore wings are fairly broad, pointed at tip; costal cells two or three times as long as broad, hairs here very long, about as long as cell-width; twelve radials, radial sector moderately curved; six cubitals beyond the divisory vein, these cells scarcely swollen below, the divisory ends beyond the

cross-vein; the postcubital area much wider than the cubital, the branches are oblique.

Seven to nine gradates in each series, often more than length apart, outer row nearly straight, the inner row much curved, and in middle it is nearer to the radial sector than to the outer row. In hind wings six to eight gradates, in nearly parallel series, but each gradate rather far from next. Pronotum moderately slender, slightly narrowed in front; antennae shorter than fore wings, basal joint fairly large.

Length of fore wing 15 mm., width 6 mm.

From south side of Pico Turquino, Oriente, Cuba, 3000 to 5000 ft., 12 to 15 June (Darlington). Type M. C. Z. no. 22678.

Coniopterygidae

Helicoconis cubana, sp. nov. (Fig. 10)

Head and thorax brown, covered with white powder, antennae brown, more yellowish toward tip; legs pale, hind femora more brown, with white, flocculent matter, abdomen brown, with the same white powder. Wings white, veins pale brown, the two subapical cross-veins interstitial near the wing tip, quite heavily dark, the cross vein to branch of medius more than its length before last, and with a deep black mark over the lower part and continued back along the branch of medius, a similar black mark over the cross-vein from medius to cubitus and continued a little above on the cross-vein to radial sector; dark clouds over the ends of the radial sector, medius and its branches, and the cubitus, another just before end of first anal vein; hind wing about as broad as fore wing, the subapical cross-veins near tip, that from radius to radial sector obliquely backward, the fork of the radial sector shorter than in most species.

Length of fore wing 4 mm.

From north side of Pico Turquino, Oriente, Cuba, 4500 to 6000 ft., 18 to 20 June (Darlington). One of the largest species of the genus. Type M. C. Z. no. 22680.

Malacomyza haitiensis Smith (Fig. 11)

A specimen from Whitfield Hall, Blue Mts., 13-20 August, Jamaica (Darlington) is this species. It is pale yellowish, the antennae gray brown; the mesonotum with a large rounded

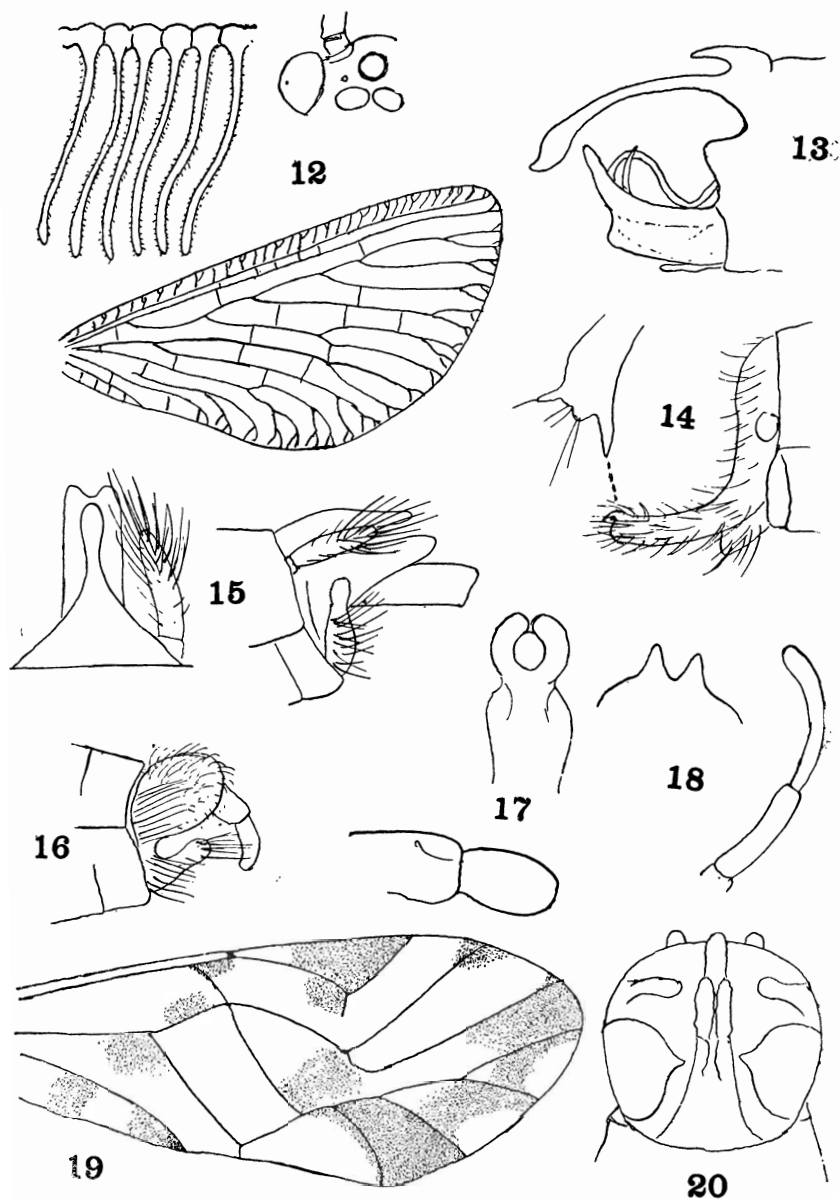


Fig. 12. *Dilar pulchella* n. sp., fore wing, vertex, and part of antenna. — Fig. 13. *Leptocella cubana* n. sp., male genitalia, side. — Fig. 14. *Hemerobius jamaicensis*, male genitalia, side. — Fig. 15. *Phylloicus superbus* n. sp., male genitalia, above and side. — Fig. 16. *Helicopsyche haitiensis* n. sp., male genitalia, side. — Fig. 17. *Hydropsyche calosa* n. sp., penis from below and side. — Fig. 18. *Idem*, superior plate and clasper. — Fig. 19. *Copostigma insolita*, n. sp., fore wing. — Fig. 20. *Helicopsyche haitiensis* n. sp. tip of abdomen from behind.

black spot at base of each fore wing, the sutures on the pleura marked with dark; legs pale, with knees and tarsi

slightly darker. Wings dark gray, uniform, but the outer margin is narrowly white, the fore wings are very broad, scarcely more than twice as long as broad; the fork of medius scarcely before fork of the radial sector; pedicel of radial sector hardly one-half as long as the fork; radial cross-vein out more than its length on the fork, the subcostal cross-vein scarcely beyond it, the medio-cubital cross-vein ends on the medius a little more than its length before the fork, no cross-vein from the cubital fork to the first anal, nor from second anal to margin. In hind wing the two cross-veins are well separated, none behind the radial sector.

Length 3 mm.

Sericostomatidae

Helicopsyche hageni, sp. nov. (Figs. 26, 28)

Body dark brown, head and thorax with some yellowish hair, but a large tuft of black on each side of vertex; palpi with black hair; basal joints of antennae black, and with long black hair, rest of antennae pale yellowish in front, behind each joint has an elongate black triangle, toward tip the antennae become wholly dark; legs more or less dark; but mid tarsi very pale, spurs dark.

Wings clothed with black hair and black fringes; the fore wings have the usual two hyaline white marks, a line over the anastomosis, and one on first fork of medius and back a short distance.

Male genitalia show a median triangular superior piece, below which is the penis, the latter with a smooth flattened apical part, with a depressed area above, each side is a broad incurved flap, very hairy on the outer side.

Length of fore wing 4.5 mm.

From north side of Pico Turquino, 4500 to 6000 ft., 18 to 20 June, Oriente, Cuba (Darlington). Type M. C. Z. no. 22668.

Helicopsyche haitiensis, sp. nov. (Figs. 16, 20)

Face with some short white hair, above with long pale gray hairs, also on pronotum, basal joint of antennae with pale gray and some longer black hair, beyond the antenna is for one-third way pale, then becoming brown; palpi with brown hair; legs yellowish, front tibiae and tarsi quite dark

brown, the tarsi banded with pale. Fore wings of a generally pale brown color, due to golden and some black hair, veins toward base with long erect black hair; hind wings gray, with gray hair and fringe. Venation of fore wing much like *H. borealis* and *H. lutea*, but the cross-vein from cubitus to medius is scarcely oblique, and the triangular area at end of cubitus is longer (this is probably fork five).

The abdomen of male shows on venter of third segment before tip a slender spine, slightly spatulate, and not as long as next segment.

The male genitalia have no long tufts of hair above as in *H. lutea*, but seen from above show a long, median piece, wider at base, tapering to a bare, downcurved tip, each side at base a very broad bristly and outwardly convex lobe, connected below to a short, fairly slender process.

Fore wing 7 mm. long.

From La Vesite, La Selle Range, Haiti, 5-7000 ft. 16-23 Sept. (M. Bates). Type M. C. Z. no. 22106.

Readily distinguished from *lutea* by the much darker wings, the dark legs, as well as larger size.

Calamoceratidae

Marilia gracilis, sp. nov. (Figs. 9, 21)

Body yellowish to brown, clothed with white hair; palpi and basal joint of antennae with white hair, beyond the antennae are yellowish brown, annulate with white; legs yellowish with white hair, front legs darker, very dark brown on tarsi and front of tibia, mid tibiae dark on apical half and the tarsi except basal half of first joint, hind tarsi largely dark. Fore wings gray with mostly short white hair, but some patches of brown on anastomosis and on veins toward base of wing, small patches here and there; hind wings gray, with gray hair and fringes.

Fore wings very slender, venation much as usual, the discal cell hardly as long as pedicel which extends almost to base of wing; fork one back not quite a third on discal cell, fork two with very short pedicel, cross-vein from radial sector to medius no longer than that closing the discal cell, and its length beyond it, cross-vein from medius to cubitus obliquely back.

In hind wings fork one back width of cell on discal, this and other cross-vein nearer to tip than in *M. minor*, and

the medius is connected to fork two by a cross-vein. Male genitalia show the usual lower claspers with the basal part much swollen toward base, the apical part curved and slender, the hood of the penis has the apical lobes so when folded down it gives an arrowhead shape; above are the slender bristly superior appendages.

Fore wings 13 mm. long.

From La Vesite, La Selle Range, Haiti, 5-7000 ft., 16-23 Sept. (M. Bates). Type M. C. Z. no. 22107.

About the size of the Cuban *M. scudderi*, but darker, fore wings a little more slender, and the genitalia plainly smaller and differing in proportions.

Phylloicus superbus, sp. nov. (Fig. 15)

Body yellowish, abdomen often more brown, especially above, palpi and antennae (except basal joints) black, tibia and tarsi more or less black, spurs pale. Fore wings dark, nearly black, crossed by two broad bands of yellow, one before, other beyond middle, the first one hardly widened behind, the second not reaching the margin, this one more angulate in middle than in *P. cubanus*; the dark is iridescent blue or purple, and the basal dark also iridescent green; hind wings blackish, costa partly yellow.

The apical part of fore wing is rather more extended, and the outer side more oblique than in *P. cubanus*. The venation is much as in *P. cubanus*; the median cell is longer, and fork four reaches fully one-half way back on median cell (in *cubanus* not one-half way). The male genitalia are also similar, the superior plate, however, has a longer and more constricted apical part than *P. cubanus*.

The much greater size is the most striking difference. Length of fore wing 11 to 13 mm., width, 4 to 5 mm.

From Pico Turquino, 16 to 21 June, 6000 ft. (summit), Oriente, Cuba (Darlington). Type M. C. Z. no. 22669.

P. cubanus occurs in many parts of Cuba, but at much lower elevations.

Leptoceridae

Æcetina antillana, sp. nov. (Figs. 6-8)

Body yellowish, dorsum of abdomen more brownish, legs, palpi, and antennae pale. Fore wings pale, anastomosis and the cross-vein from medius to the cubitus brown, hairs long

and gray, on costa not especially dense, toward wing tip the hair is denser and more brown; hind wings gray, with gray fringes. Fore wings long and slender, tip a little rounded, discal cell extremely slender, not widened toward tip, the fork of medius is far before base of discal cell, venation much as in *Æ. persimilis*, but the medio-cubital cross-vein is less oblique than even in that species; in hind wings, however, the forking of radial sector is only a little before the cross-vein, and fork three has a pedicel one-half its length. The male genitalia have very short processes, those from below upcurved, and slender.

Length of fore wing, 7 mm.

From Soledad near Cienfuegos, Cuba, 23 April (Darlington), and 6 to 20 Aug. (Banks). Type M. C. Z. no. 22670.

Leptocella cubana, sp. nov. (Fig. 13)

Head and thoracic notum with white hair, abdomen greenish above, more yellowish below, antennae white, joints with apical black band gradually increasing until antennae wholly dark, palpi gray, legs white. Wings white, fore wings with dots of black hair, mostly on apical veins, and near the hind margin, a larger black dash crossing the anastomosis at the median vein. In fore wings discal cell widened above at an angle beyond the middle, then much narrowed to tip, median cell reaching much before the discal, widened below at an angle at the cross-vein to cubitus, this cross-vein situated more than one-third the way from apex of median cell to base; forks one and three both with moderately long pedicels; in hind wing only fork five present. Male genitalia with very long superior appendages, downcurved, and the tips enlarged, lower piece large, with an upper apical prolongation.

Length of fore wing, male, 9 mm.; female 6.5 mm.

From Guines, Cuba, April, and Soledad, Cuba, 13 May (G. Salt). Type M. C. Z. no. 22671.

Hydropsychidae

Macronema poeyi, sp. nov. (Fig. 23)

Face with whitish pubescence, the vertex, thoracic notum, and tegulae with distinctly greenish pubescence; palpi legs, and antennae pale yellowish; abdomen yellowish. Fore wings

brown, with innumerable tiny spots of white hairs, often tending to form bands; hind wings gray. Venation similar to *M. gundlachi*, the discal cell scarcely longer, fork one with a short pedicel, median cell about three times as long as broad, the lower branch of medius does not swell forward toward median cell nearly as much as in *M. gundlachi* (where this area is especially widened).

Readily separated from *M. gundlachi* by the male genitalia, in *poeyi* the superior plate is deeply divided, each lobe out-curved, in *gundlachi* the superior plate is oblong, entire; the apical part of the basal joint of claspers in *poeyi* is plainly swollen and on inner side with short, stiff hairs; in *gundlachi* the apical part is not at all swollen; in *gundlachi* the apical part of penis is very much broadened each side, in *poeyi* the apical part of penis is elliptical.

Fore wing 12 to 14 mm. long.

From coast below Pico Turquino, 26 to 30 June, Oriente, Cuba (Darlington). Type M. C. Z. no. 22675.

Hydropsyche calosa, sp. nov. (Figs. 17-18)

Head dark, with rather appressed whitish to yellowish hair, and longer erect black hair, pronotum with yellowish hair, mesonotum dark on sides, abdomen dark, pale near tip below, antennae pale, ringed as usual, palpi and legs pale.

Fore wings pale, several blackish spots in costal area, elsewhere mostly dark along the veins, some large spots behind medius toward base, and behind cubitus farther out, and several along anal area, most of the hair on membrane short and yellowish, hind wings gray, with gray fringes.

Discal cell nearly three times as long as broad, median cell much longer and somewhat narrower, fork one with pedicel less than its length, fork two back on discal less than one-half way, fork three with a short pedicel, fork four back a little way on median cell, as far back as fork five. In hind wings fork one is one-half its pedicel.

In male the superior plate has a median incision, the clasper has the basal part shorter than the apical, the tip of the latter enlarged, the penis has a distinct flattened apical part, with a curved piece each side.

Length of fore wing 7.5 mm.

From Cuba (probably Oriente) (C. Wright), also Cuba, 1864, (Gundlach), and one from Hanabanillo

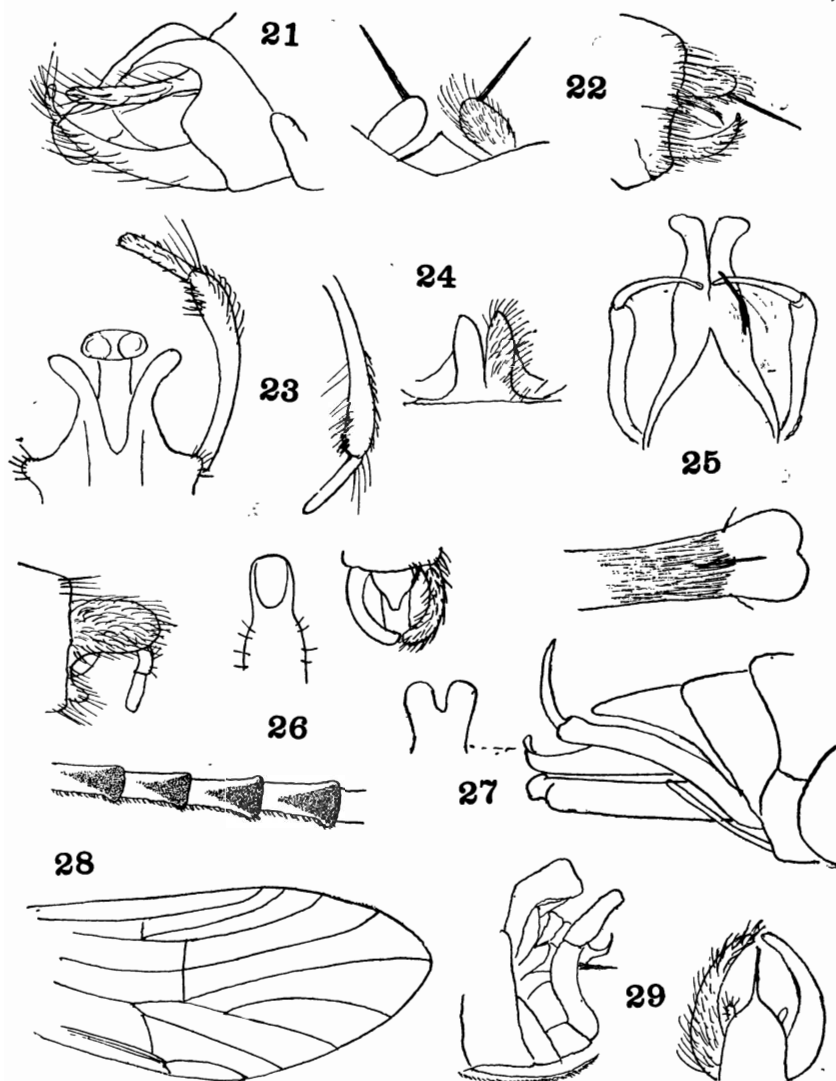


Fig. 21. *Marilia gracilis* n. sp., male genitalia, side. — Fig. 22. *Polycentropus insularis* n. sp., male genitalia, top and side. — Fig. 23. *Macronema poeyi* n. sp., male genitalia, top and clasper. — Fig. 24. *Polycentropus insularis* n. sp. male genitalia, below. — Fig. 25. *Smieridea unicolor* n. sp., male genitalia, above and penis. — Fig. 26. *Helicopsyche hageni* n. sp., antenna part, male genitalia, side, penis above, genitalia above. — Fig. 27. *Smieridea obesa* n. sp., male genitalia, side, and penis. — Fig. 28. *Helicopsyche hageni* n. sp., fore wing. — Fig. 29. *Atopsyche batesi* n. sp., male genitalia, side and above.

Falls, Trinidad Mts., 30 April (Darlington). Type M. C. Z. no. 22673.

Polycentropus nigriceps, sp. nov. (Fig. 5)

Head densely clothed with black hair, front of thorax

also; antennae brownish, tips of joints darker; palpi brown; legs pale yellowish, mid tibiae and basitarsi a little darker behind, spurs very pale; abdomen nearly black above, paler below.

Fore wings dark brown, with many small pale yellowish spots, those along costal area larger, and those toward tip tending to form bands; two hyaline white marks, one over cross-vein from end of discal cell to medius, and an angular one over forking of medius and the cross-vein behind; hind wings dark gray, fringe not darker.

Discal cell very long, longer than pedicel, fork one not as long as pedicel, fork two back to discal cell, fork three not reaching to median cell, fork four as long as three, fork five very much longer, not especially wide. In hind wing fork one not equal to pedicel, fork two not back to cross-vein, fork five broad and reaching a little before cross-vein.

The lower edge of the superior plate has a long, out-curved reddish spine each side, the lateral pieces are forked, the upper part very slender, the inferior appendages are very broad, but tapering to rounded tip.

Length of fore wing, 7 mm.

From Soledad near Cienfuegos, Cuba, April (Darlington), and Mina Carlota, Trinidad Mts., Cuba, 24 March (G. Salt). Type M. C. Z. no. 22674.

Polycentropus insularis, sp. nov. (Figs. 22, 24)

Body brown, head and thorax above with golden and some black hair; antennae yellowish, brownish toward tips, palpi and legs pale yellowish, spurs a little darker. Fore wings of a general brown color, with black and golden hair, and markings of pale yellowish to white; some pale cross-lines along posterior border, larger pale spots along costal area, faint pale spots elsewhere; hind wings gray, with gray hair and fringe.

In fore wings the discal cell is full three times as long as broad, fork one with pedicel about two thirds its length, fork two back to cell, fork three with pedicel one half its length, fork four scarcely longer than three but goes back to the cross-vein, fork five with a short pedicel. In hind wing fork one is short, fork two nearly twice as long, fork five large as usual; the two anals bend only a little toward each other, so that the cross-vein is quite long.

The male genitalia are inconspicuous; above are two oval lobes, sloping inward, from below each is an outwardly directed thorn-like process, from below are two adjacent pieces, divergent at tips, within is a curved, dark, downcurved piece.

Fore wing 6 mm. long.

From Grand Etang, Grenada, Sept. 1910 (Allen and Brues). Type M. C. Z. no. 22111.

Smicridea obesa, sp. nov. (Fig. 27)

Male. — Head, thorax, and abdomen deep black; antennae black; palpi black; legs largely pale, but hind tibia and tarsus dark, spurs dark on base, pale beyond; wings clothed with deep black hair, no white on stigma nor elsewhere.

Female. — As male, except entire stigma and area behind it snow white, and behind toward end of anal vein is a transverse white bar, also some patches of white in the apical fringe. Structure and venation much as usual; the abdomen of both sexes extremely broad, and male genitalia hardly noticeable.

The superior plate has a bilobed tip (seen from below), the clasper is long, slender, a little curved, and the apical part much more slender and tapering toward tip, the inferior appendages very long and slender, white.

Fore wing length 7 mm.

From Pico Turquino, 16 to 21 June, 6000 ft. (summit), Oriente, Cuba (Darlington). Type M. C. Z. no. 22672.

Smicridea unicolor, sp. nov. (Fig. 25)

Body black throughout, legs yellowish brown, but tibiae nearly black, and hind tibiae with long black hair; spurs pale; wings with black hair and fringes, on the costa near base of stigma is a very small patch of white hair and behind it over base of fork four is a small streak of white hair, the two patches faintly connected in some specimens.

In fore wings the discal cell is long and slender, fork one back a short distance on it, fork two reaches cell, fork three back as far as fork two, fork four very long back to the cross-vein, plainly basad of the fork five; the cross-vein from medius to cubitus is a little before that from cubitus to anal. In hind wings the first and second forks are equal.

The male genitalia show a long median, superior piece, with bicurved sides and a divided tip, beneath this is the

large penis, black, with a pale tip; each side at the base of the apical part is a small bristle, the claspers are moderately slender, the apical part very slender.

Fore wing 6 mm. long.

From La Vesite, La Selle Range, Haiti, 5 to 7000 ft., 16 to 23 Sept. (M. Bates). Type M. C. Z. no. 22110.

Rhyacophilidae

Atopsyche batesi, sp. nov. (Fig. 29)

Head black, some white hair on face, between antennae and middle of vertex, otherwise black hair on vertex; basal joint of antennae black, beyond pale, gradually marked with brown, until it is all brown from one third way out; thorax with black hair, some shorter white hair in middle; legs yellowish brown, front and mid tibiae dark brown on outer side, banded with pale; abdomen black, with black hair, genitalia pale.

Fore wings dark, with black and some white hair, stigma black, a white spot before and one just beyond it, another white spot across anals toward base, one in apex of fork five, and one just above it, another on apical third of fork two, and white hairs here and there among the black hairs on the veins; hind wings gray, with black hair. Fore wings not especially long, discal cell four times as long as broad, fork one nearly as long as pedicel, fork two broad on discal cell, fork three with pedicel nearly one half of fork in male, in the female the pedicel is not one fourth of fork, fork five short, slender, pointed at base. Hind wings with venation as usual, except that fork three is plainly longer than one.

Male genitalia show a membranous superior hood, the apical half compressed and vertical, each side beneath it is a short bristly process, the lower claspers are large, curved, of three parts, the base short, middle part much the longest, and the apical part about as broad as the rest and blunt at tip, beneath is a long slender median spine, bristly on lower side; in female also a similar long spine, and on the next segment near tip is a short spine.

Fore wings ♂, 8 mm., ♀, 10 mm. long.

From La Vesite, La Selle Range, Haiti, 16 to 23 Sept., (M. Bates): Type M. C. Z. no. 22105.
